**Chapter 17: Evolution of Populations**

**State Standards**

**Central Concept:** Evolution is the result of genetic changes that occur in constantly changing environments. Over many generations, changes in the genetic make-up of populations may affect biodiversity through speciation and extinction.

5.2 Describe species as reproductively distinct groups of organisms. Recognize that species are further classified into a hierarchical taxonomic system (kingdom, phylum, class, order, family, genus, species) based on morphological, behavioral, and molecular similarities. Describe the role that geographic isolation can play in speciation

5.3 Explain how evolution through natural selection can result in changes in biodiversity through the increase or decrease of genetic diversity within a population.

S1S1 Make observations, raise questions, and formulate hypotheses.

* Observe the world from a scientific perspective.
* Pose questions and form hypotheses based upon personal observations, scientific articles, experiments, and knowledge.

Key Terms

Gene

Gene Pool

Single-Gene Trait

Polygenic Trait

Phenotype

Population

Directional Selection

Stabilizing Selection

Disruptive Selection

Genetic Drift

Bottleneck Effect

Founder Effect

Sexual Selection

Species

Speciation

Reproductive Isolation

Behavioral Isolation

Geographic Isolation

Temporal Isolation

**You should be able to:**

1. Define evolution in genetic terms.
2. State what determines the number of phenotypes for a trait.
3. Explain how natural selection affects single-gene and polygenic traits.
4. Describe genetic drift and list the two examples of genetic drift.
5. Distinguish between directional, stabilizing, and disruptive selection for polygenic traits.
6. Identify the types of isolation that can lead to the formation of new species.
7. Describe the current hypothesis about Galapagos finch speciation.

**You should know the difference between:**

* Genetic Drift: Bottleneck Effect and Founder Effect
* Single-Gene Traits and Polygenic Traits
* Directional, Stabilizing, and Disruptive Selection
* Reproductive Isolation: Behavioral, Geographic, and Temporal Isolation

**Chapter 17 Video Review**

**Crash Course – Speciation**

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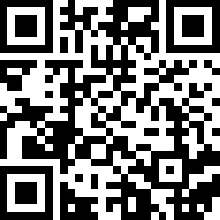
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**Speciation: An Illustrated Introduction**

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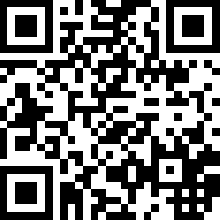
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**Courtship Rituals – Birds of Paradise**

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**The Sci Show – Why Sex?**

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**Bozeman Biology - Speciation**

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